

The Rogue River cleanup

We have an emergency crisis growing in Grants Pass, Oregon. The levels of mercury and lead found in the Rogue River are unfit for human consumption, as well as, wildlife. It has been well documented the adverse affects of these contaminates have on the ecosystem. Eden Environmental has designed a plan of action that will alleviate the contamination from our local river. The emergency that's facing future generations is now. The situation is imperative that we act to preserve the river for generations to come.

DEQ finds too much mercury in Rogue River

According to DEQ, "State authorities want to reduce high levels of mercury in resident fish in the Rogue River and other popular whitewater and sport-fishing rivers.

A draft assessment by the Oregon Department of Environmental Quality shows tests of northern pike minnow taken from the Rogue had 10 times the state standard for mercury.

Bill Meyers, the Rogue Basin coordinator for agency, says the assessment adds a dozen rivers listed as impaired by mercury. Reducing

mercury levels is likely to be difficult. It is found in the local geology and falls in rain from atmospheric sources produced by burning coal in Asia. Bob Ferrar of the Oregon Public Health Authority says migratory fish such as salmon and steelhead are safe to eat, but fish that spend their lives in the river can be a problem.

The DEQ is proposing similar designations for the Clackamas, McKenzie and North Santiam as well as the mid-Columbia River. Other streams, such as the Willamette River, were studied for mercury last decade.”

According to the NRDC:

Mercury pollution can be a serious health threat, especially for children and pregnant women.

“Mercury is emitted to the air by power plants, cement plants, certain chemical manufacturers, and other industrial facilities. In addition, over the years, many companies have used mercury to manufacture a range of products including thermometers, thermostats, and automotive light switches. These products can release mercury, particularly at the end of their useful life during waste handling and disposal. Mercury pollution released into the environment becomes a serious threat when it settles into oceans and waterways, where it

builds up in fish that we eat. Children and women of childbearing age are most at risk.”

With the consumption of fish, water, plants and animals, humans and wildlife are being poisoned with mercury. Mercury is extremely difficult to notice because of its attributes of being odorless and invisible when chemically bonded into the meat of the fish, plants, or animals. “In the human body It affects the immune system, alters genetic and enzyme systems, and damages the nervous system, including coordination and the senses of touch, taste, and sight.” (Source: USGS)

“The deaths of a number of people and the occurrence of serious neurological diseases, brain damage, and paralysis in others at Minamata Bay and Nigata, Japan, in the 1950s and 1960s caused by Methyl mercury poisoning, focused concern on the human health effects of this compound (Smith and Smith, 1975). Human health effects have also been documented as a result of the consumption of contaminated grain in Iraq (Bakir, et al. 1973). Wildlife have also been affected by methyl mercury,

largely as a result of ingesting food high in mercury, from either geologic or anthropogenic sources(Wren, 1986).

Methyl mercury is formed in the aquatic environment when inorganic forms of mercury are converted by biological mechanisms. This transformation is largely the result of microbial activity.

Methyl mercury accumulates in fish and other

Mercury in Oregon Lakes

aquatic predators, becoming more concentrated in organisms higher in the food web. In Oregon, aquatic organisms have been shown to accumulate levels of methyl mercury which pose a health threat to the humans and wildlife which consume them.

While methyl mercury is the form of mercury most harmful when ingested, analysis for it is more costly and complex than the analysis for total mercury. The EPA recommends that total mercury be determined in fish contaminant monitoring programs, making the conservative assumption that all mercury present is methyl mercury.

Studies have shown that in fish three years of age and older, methyl mercury comprises at least 80 percent of the total mercury concentration (U.S. EPA, 1993). Therefore, our studies report total mercury, with the understanding that methyl mercury may be present in lower concentrations, and is the major health concern.”(Source: Epa.gov)

Historically Southern Oregon has been a hotspot for mining activity. Load mines used mercury to capture gold particles from the ore. This is one source of mercury contamination. Placer miners used mercury traps to capture gold. Other sources include natural occurring mercury deposits, unfortunately there is no way to estimate exact amounts of mercury in the watershed system. However, we do know the levels of methyl mercury in the river have become toxic according to the EPA, DEQ, NRDC, and the USGS.

What are the effects of lead?

“In addition to exposure to lead in air, and other major exposure pathways include ingestion of lead in drinking water and lead-contaminated food as well as incidental ingestion of lead-contaminated

soil and dust. Lead-based paint remains a major exposure pathway in older homes. Once taken into the body, lead distributes throughout the body in the blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system. Lead exposure also affects the oxygen carrying capacity of the blood. The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects (e.g., high blood pressure and heart disease) in adults. Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits and lowered IQ.

Lead is persistent in the environment and accumulates in soils and sediments through deposition from air sources, direct discharge of waste streams to water bodies, mining, and erosion. Ecosystems near point sources of lead demonstrate a wide range of adverse effects including losses in biodiversity, changes in community composition, decreased growth and reproductive rates in plants and animals, and neurological effects in vertebrates.” (Source: EPA)

According to “Information for the Community Lead Toxicity” and “Michael R. Moore (1977)” “Lead exposure mostly occurs through

ingestion. Lead paint is the major source of lead exposure for children. As lead paint deteriorates, it peels, is pulverized into dust and then enters the body through hand-to-mouth contact or through contaminated food, water or alcohol. Ingesting certain home remedy medicines may also expose people to lead or lead compounds. ^[118] Lead can be ingested through fruits and vegetables contaminated by high levels of lead in the soils they were grown in. Soil is contaminated through particulate accumulation from lead in pipes, lead paint and residual emissions from leaded gasoline that was used before the Environment Protection Agency issued the regulation around 1980. ^[119] The use of lead for water pipes is problematic in areas with soft or (and) acidic water. Hard water forms insoluble layers in the pipes while soft and acidic water dissolves the lead pipes.” According to Rogueforum.com from Central Point and down from the Rogue River the PH level is about 6.8. This creates an acidic level. Also the hardness is 25ppm which is extremely low making it a soft water.

Ten million pounds of estimated lead fishing weights are sold annually in the United States, which breaks down to 200,000lbs per state. We have estimated that approximately 4 tons of lead enters the Rogue River below Lost Creek Reservoir annually. Considering the 126 miles of river from Lost Creek to the Pacific Ocean that’s about 65lbs

per mile. When you multiply this by 50 years of fishing the amount of estimated lead per mile is between half a ton and 2.5 tons depending on points of accumulation, and this estimate does not include the lead drift boat anchors, buckshot or other spent ammunition that has accumulated in the Rogue River.

Lead and mercury is creating a toxic environment within the ecosystem of our river. The water from the Rogue River is being used for irrigation of farmland and livestock. As this water becomes more toxic, it is poisoning the crops, live stock, wildlife, and people as we consume our locally grown food. It is critical we act now to start repairing the environment as inaction will only lead to further degradation of our ecosystem. The only way to get the lead and mercury out of the river system is to physically remove it, which, can be a very labor intensive process.

Clean Water Act, Section 104(b) (3)

We, at Eden Environmental and Keene Mfg. have developed a highly efficient filter system that is designed for capturing lead and mercury. Our plan is to send divers to the bottom of the river to filter the lead and mercury out of the gravel and sand. The lead and mercury

will be weighed, documented, and sent to the appropriate reclamation centers. As we remove the lead, mercury, and trash from the river, the ecosystem will begin to heal. We, at Eden Environmental, need this grant to fund our project to bring justice to our ecosystem. The emergency that's facing future generations is now. The situation is imperative that we act to preserve the river for generations to come.